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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: SALKINI et al.

Serial No. 09/245,292 Examiner: C. Lee

Filed: February 5, 1999 Art Unit: 2663

For: MULTI-PROTOCOL WIRELESS COMMUNICATION
APPARATUS AND METHOD

Declaration Under Rule 132

Commissioner for Patents
Washington, DC 20231

Dear Sir:

Thomas Joseph, an applicant in the above-identified patent application, declares as follows:

1. I have worked in the telecommunications industry for 16 years. I have worked in the mobile telecommunications industry for 14 years. I have worked with small- and mid-size networks for 11 years, setting up entire mobile networks from scratch, including installing mobile switching centers and other equipment.

2. That the claimed invention is a mobile switching center and corresponding method for operating the mobile switching center, that incorporates features of a single platform having a communications back plane or a single housing comprising a central processor and wireless interface module, as recited in the pending claims (the "claimed invention") of the above-identified application.

3. That small- and mid-size mobile networks that serve rural, smaller urban and other small- to mid-size markets exist and have existed for some time. Indeed, small- and mid-size mobile networks have existed both domestically and internationally as long as wireless communications have existed. Small- and mid-size networks have existed both domestically and internationally for as long as wireless communications have existed. Organizations such as the Rural Cellular Association (RCA) have existed in the

United States for 20 plus years (www.rca-usa.org). The specific mission statement of RCA is to address the interests of small rural operators. The challenge for the smaller operators is to compete with the larger operators that have deeper pockets and broader subscriber bases. Larger operators have the benefit of a larger potential customer base that justifies a significant capital expenditure. The smaller operators must compete, but do not have the luxury of the volume discounts provided to the larger networks. Prior to the claimed invention, their choices are to purchase a large-scale system at a higher price to serve a smaller subscriber base, or purchase a system that is tailored to their market segment in cost and size but provides the functionality of the larger systems.

Internationally, almost all new networks being installed in developing countries are wireless. The need for communications and the environment of a third world country necessitate the use of wireless communications. By nature, most developing countries have a few population centers where a high concentration of population live and/or work. The remaining population is spread over largely undeveloped areas and villages. Wireless is an ideal solution for these markets because in many cases the only available infrastructure to backhaul to a central location is a satellite connection. Over the life of the system, satellite costs can be the driving cost operationally, so a solution that minimizes the use of satellite is optimal for these cases. The benefit of the smaller cost-effective system, such as the claimed invention, is the ability to provide local switching and call handling within the village or town. Thus satellite backhaul is reduced and provides significant cost savings over time. If a large-scale prior art system is deployed in similar circumstances, two issues present themselves as distinct disadvantages:

- The high cost initially and over time to maintain a large-scale switching system prohibits installing one in each town or village. Therefore all calls must be switched back at a central location. This by definition increases the satellite costs for the system.
- If calls are "double hopped" over satellite, this presents a large degradation in service as well as a considerable delay (1/4 second per hop).

4. That industry standard is, and has been, to build discrete, large-scale components that are subsequently incorporated into racks of other discrete components to assemble a non-scalable mobile communications system that is not an efficient

architecture for small- and mid-size mobile networks. The large-scale systems that are available in the market today are based on architectures developed 20 years ago. Several examples of large-scale systems can be found at the following web sites:

- o 5ESS – www.lucent.com
- o DMS – www.nortel.com
- o EWSD – www.seimens.com

Typically, these systems are built to handle 500,000 subscribers and in to the millions of subscribers. To those familiar with the space, these are the large-scale providers whose systems can fill a room

5. Based on the disadvantages of large-scale systems described in paragraphs 3 and 4, small- and mid-size networks have a need for simple, scalable mobile communications systems. These disadvantages of large-scale systems have existed as long as small- and mid-size networks and these large-scale systems have existed. A simple, scalable mobile communications system would meet the needs not addressed by the large-scale systems. Therefore, the needs of the small- to mid-size mobile networks for simple, scalable mobile communications systems have existed as long as these small- to mid-size mobile networks have existed. Consequently, prior to the claimed invention, there was a long-felt need for simple, scalable mobile communications systems.

6. That all attempts prior to the claimed invention to meet this long-felt need have failed. Specifically, other companies have attempted to build a solution for the smaller markets. None of these companies attempted to satisfy this need with a mobile switching center, and corresponding method for operating the mobile switching center, that incorporates features of a single platform having a communications back plane or a single housing comprising a central processor and wireless interface module as recited in the claimed invention. None of these companies have been as successful as TECORE. Below are two such examples.

- o Comsat RSI Plexsys Wireless Systems – This company built an AMPS wireless solution that was relatively successful in the marketplace in the late 1980's early 1990's. However, the chosen architecture was not able to migrate to a digital standard. They went out of business in 1998. The main

cause was the inability of the platform to support digital technology. Therefore, this attempt failed.

- o Celcore – This company built a solution that was sold into AMPS markets and GSM markets. The solution was what is disclosed in the Fletcher reference. This is not the same solution the claimed invention although it attempts to solve the same issues for smaller networks. Celcore was acquired in November 1997 by DSC Communications. Subsequently, DSC has discontinued production of the Celcore products. Therefore, this attempt failed.

7. That the claimed invention solves this long-felt need. Specifically, the feature of the single platform or single housing having the communications back plane, and the corresponding method, solves a long-felt need for a simple, scalable mobile communications system for small- and mid-size mobile networks. The following article emphasizes this:

Wireless Review September 15, 1998:

MULTIPLE-TECHNOLOGY PLATFORM Wireless 2000 PCS also took advantage of another product developed especially for smaller markets, the AirCore MSC platform developed by TECORE for mobile, wireless local loop and wireless PBX platforms.

TECORE developed this product after determining that there was a niche for wireless not being addressed by the bigger infrastructure vendors. "We saw a really good opportunity to build a scaleable wireless switching system with all the bells and whistles, which could be offered in a small capacity originally and then could grow with the subscriber base," said TECORE's Joseph. But instead of choosing to address just one of the technologies, TECORE decided to take an innovative approach and build one that could address multiple technologies.

"This is great for operators who are buying the system not to be tied into one interface technology. They can buy new base stations and then crank up a CDMA overlay over GSM and capture roaming traffic," he said. So if a carrier has a hot stretch of highway, it can increase its roaming revenue.

TECORE started with AMPS first, then GSM. This year it added TDMA, CDMA and a multiprotocol switch. If an operator has an AMPS system and requires SS7 connectivity to upgrade, then it will have to purchase some hardware, Joseph said.

"But we managed to take the particulars of an individual protocol and isolate them to a very low layer of software within our application on a common hardware platform," he said.

Other advantages of the TECORE AirCore include its small size.

"Basically it's a single chassis, 17 inches high, and fits in a 19-inch rack mount. That product is a full-blown network switching subsystem," Casey said. "All of the components, other than the RF, are integrated to where you can actually -- if you have your base stations in place and if you have your PSTN and wireless connections in place -- bring our system in and crank up and start doing calls in a very short period of time."

Therefore, the claimed invention solves a long-felt need.

8. That TECORE has achieved commercial success due to the claimed invention. Specifically, TECORE has achieved commercial success due to the mobile switching center with the feature of the single platform or single housing having the communications back plane, and the corresponding method. TECORE has developed a highly successful business by providing such mobile switching centers according to the claimed invention to support these small- and mid-size mobile networks. From 1998 to 2002 TECORE revenue has increased over 800%. Revenue directly based on the AirCore system on which the claims read in this time period has doubled. This has occurred in a period when revenues in the telecom industry have declined sharply. The success of the AirCore system directly facilitated the expansion of TECORE's business into turn key systems where both base stations and switching systems are provided as a package to network operators. Without the AirCore system, the economics and technical feasibility of the networks deals TECORE has successfully installed would not have been possible. The features of the AirCore system made these deals achievable for TECORE. The 800% increase in TECORE's revenue was directly facilitated by the AirCore System. Without the AirCore System, *i.e.*, the mobile switching center with the feature of the single platform or single housing having the communications back plane, TECORE's revenue would have been \$0.00. Therefore, the marketplace has recognized the importance and uniqueness of the claimed invention.

The declarant further states that the above statements were made with the knowledge that willful false statements and the like are punishable by fine and/or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of this application or any patent resulting therefrom.

Date: 8/22/03

Signed 
Thomas Joseph